Remarks

Reconsideration of the application is requested in view of the amendments above, drawing correction submitted herewith and comments which follow.

Taking the matters raised by the Examiner in turn, and turning first to numbered section 3 on page 2 of the Office Action, it appears that the Patent and Trademark Office now properly has both the substitute specification and the marked-up copy. In accordance with 37 C.F.R. § 1.125, the substitute specification does not contain any new matter.

Regarding the election of species, claim 10 has been cancelled so that the Examiner may focus on claims 1-9.

Regarding the objection to the drawings in numbered sections 7 and 8, a corrected second sheet of drawings is submitted herewith. All should be in order.

Regarding sections 9-12, the substitute specification should now be entered and does clearly conform to 37 C.F.R. § 1.125. In the amendments, in view of the Examiner's objection, reference to the applicant's prior art has been deleted from page 2, and paragraphs have been deleted from page 3, and moved to the end of the specification. The error noted by the Examiner on page 8 has been corrected, and on page 7, line 12, the identification of the light detector has been corrected. A spelling error on page 9 has also been corrected.

In numbered section 14 on page 5 of the Office Action, the Examiner has rejected claims 1-9 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Reconsideration is requested, since the applicant submits that the subject matter of the application is fully enabled.

The claimed apparatus comprises light scanning means, a rotary stage, an optical system and a light detector as discussed in relation to Figure 1. Light from the scanning means scans the specimen and the optical system operates to direct onto the detector only light which exits or bypasses the specimen and which is parallel to the original illuminated beam incident on the specimen, the optical system achieving this while the light from the scanning means scans the specimen. The examiner states that the structure of the convex lens is not described. However the invention lies in the use

of an optical system to ensure only parallel beams are incident on the detector, not the structure of the convex lens as such.

As discussed in the specification on page 5, the prior art optics of Figure 3 are an image-forming system which has a symmetry such that any point on the image plane 14 maps to a point in the focal plane 12 and vice-versa. However, the inventive optics of Figures 4 and 5 do not display such symmetry and with the optical system disclosed only parallel light is directed onto the detector, so disregarding the other transmitted beams which are not parallel. The invention can be put into practice as described on page 2 lines 1 by other alternatives such as a concave mirror, or diffraction grating, and the invention is enabled by using an optical system able to direct only parallel light onto the detector. Someone of ordinary skill in the art having seen diagrams 4 and 5 would readily understand how to select an appropriate optical system, whether he used an appropriate convex lens, concave mirror or diffraction grating.

In Figure 4, the examiner will see that central beam 16 which is the only beam parallel to the incident beam, shown by the black line with arrow, is the only beam to reach the detector 9a – the other beams are too divergent to reach the detector. From Figure 5, the examiner will see that there are a large number of beams that leave the specimen parallel to the original incident beam, shown by the black lines with arrows and all these beams are imaged onto the detector 9a. The present apparatus thus ensures that only beams parallel to the incident beam are imaged on the detector, which is very different from the arrangement shown in Figure 3 of the prior art detector where all the beams passing through the specimen are imaged onto the detector, regardless of their original path.

The person of ordinary skill in the art seeing Figures 4 and 5 would understand how to select an appropriate convex lens, concave mirror or diffraction grating to achieve the selection of light paths shown. With the prior art system of Figure 3, widely divergent beams are imaged onto the detector and thus the detector receives a large amount of scattered light, affecting the signal-to-noise ratio. The person of ordinary skill in the art would understand from 6 lines 10-12, that with the present invention, detection of scattered light is limited which provides for a higher signal-to-noise ratio to be obtained, so improving signal quality.

It is therefore submitted that the invention claimed in claims 1 and 9 is clearly enabled to one of ordinary skill in the art when applying the full teaching of the current specification.

With regard to section 16, the antecedents within claims 1 and 9 have been revised. Concerning the objection to claim 8 (mistakenly referred to by the examiner as claim 3), claim 8 has been revised slightly to state that the light scanning means is part of a confocal scanning microscope. This claim is intended to convey that the light scanning means within the apparatus of claim 1 can be provided by, and thus be part of, a confocal scanning microscope. Often the present invention will be used with such a microscope, see page 5 lines 5-6 of the specification, where it is stated that various components including light scanning means may be provided by a confocal light-scanning microscope.

The spelling corrections required by the Examiner in section 17 have been accomplished above.

The Examiner has rejected claims 1-4, 6-7 and 9 under 35 U.S.C. § 102(b) as allegedly being anticipated by Tsutomu et al. Reconsideration is requested, since it is submitted that Tsutomu does not disclose all claimed features of the present invention.

Tsutomu et al shows an optical tomography imaging device in which the light from one or more sources is directed through a sample to be detected by an opposed detector array (4). The light passing through the sample reaches the array through a "high directivity optical system" comprising a number of optical devices that can take any of the forms shown in Figures 11-20. As can be seen from those figures, the devices generally include converging lenses and pinholes/optical fibres for ensuring that light is transmitted through such a device (3) only if it enters the element in a direction parallel to the device's optical axis. As can be seen from Figures 3 and 4, each of the devices (3) of the high directivity optical system is associated with a respective single detector (4), so that a device (3) only allows light to reach its detector from one direction, as defined by the axis of that particular device. Since each detector (4) can thus only receive light from a single respective direction, an arced array of detectors and associated high directivity optical elements (3) is required if the incident light beam is to be scanned relative to the specimen. In the case of Figure 3, scanning is achieved by

having a number of different laser sources (1) each directed towards a respective sensor (4), whereas in the arrangement of Figure 4 rotating mirrors are used to scan light from a single laser source.

In either of these cases, however, light is directed onto successive localised detectors throughout the scanning movement of the incidence beam of light. Thus, the apparatuses shown in Tsutomu et al do not have the feature, as claimed in claim 1, that **throughout the scanning movement** of light on a specimen, only light which exits the specimen and which is parallel to the incident beam is directed onto the detector.

Thus, the apparatus of the invention achieves improved signal to noise ratio, as previously explained, in relation to arrangements which use focal optics. In addition, the apparatus according to claim 1 avoids the need for the relatively complex arrangement of a multitude of directional optical devices such as the device (3) shown in Tsutomu et al.

It is therefore submitted that Tsutomu et al neither shows nor suggests the features of claim 1 or claim 9 of the present application. Further, there is nothing in this document that would direct the person skilled in the art to realize that an improved signal-to-noise ratio can be achieved by using a much simpler arrangement that does not require a multitude of directional optical devices.

It is therefore submitted that the present claims are novel and also non-obvious over this prior art reference.

So that the record is complete, a further IDS is submitted herewith.

Further action by the Examiner is now awaited.

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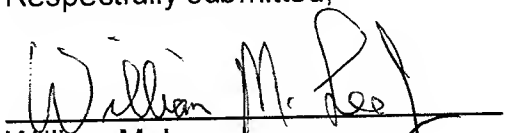
Respectfully submitted,



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